Microsoft® Windows Server System™

Addressing Portal Scenarios with Microsoft Integrated Portal Technologies

White Paper

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Introduction

Web portals are among the most important enterprise applications that information technology departments are currently asked to produce. This is because portals have significant potential to transform how organizations do work and conduct business. Using portals, organizations can streamline processes and transactions, increase employee productivity, and strengthen relationships with customers and partners.

However, portals and especially the management of multiple portals, also represent a substantial technical challenge. Creating and maintaining portals of any type has broad implications across the IT infrastructure. Issues such as deployment, content sharing, security, workflow, integration, ease-of-use and more, are straining already overloaded developers and IT departments. Furthermore, these challenges continue to increase in complexity as business objectives drive demand not only for more portals, but for portals with increasingly sophisticated capabilities, created and modified in less time than ever before.

IT departments can reduce the complexity and time required to deploy and manage portal solutions by viewing portals not as discrete, independent projects, but instead as a broad, enterprise-wide endeavor. In essence, the problem is not how to deploy and maintain “the portal,” but rather how to equip the enterprise with a comprehensive framework to create, maintain and modify any type of portal required to meet business needs - both now and in the future.

This white paper discusses the scope of the broad portal challenge: what capabilities to plan for, what technologies to consider, and how to evaluate the impact your technical choices will have on your project. This paper also discusses Microsoft Integrated Portal Technologies, a set of products that forms a coherent framework on which to build your portals while maximizing return on investment. Finally, the paper outlines a set of scenarios for different types of portals, showing how the various elements in the Integrated Portal Technologies can be assembled to create portals that satisfy both business and technical requirements.

Part 1: What is a portal, and what does it do?

The term portal is used to describe a wide variety of Web sites, ranging from internal sites for employees (intranet) to external sites aimed at consumers and partners (internet, extranet). In general terms, a portal is a Web site that aggregates *contextually relevant* information, applications, and services. A portal distills the complexity and variety of information and services available to a user into a single interface targeted to that user's needs and interests. Portals are a direct response to the breadth and complexity of the online world.

Employee-facing portals generally offer some combination of collaboration functionality and application integration. That is, intranet portals provide (and control) access to the information and collaborative environments employees need to do their jobs, and to a unified interface for interacting with multiple line of business systems. Intranet portals are fast becoming an area of critical importance; they allow employees to find and collect relevant information, collaborate with great efficiency, and make new connections between disparate information sources and applications.

In an Internet environment, portals are used to provide focused and targeted information to customers and partners, allowing them to customize what they want to see and how they see it, and to provide new content and services based on their user profiles and past actions. E-commerce portals allow for a rich buying experience, where the Web site responds to the user's preferences and actions, offering them personalized information and promotions. Partner portals (extranet) enable deeper and broader relationships between companies, as they share information, perform transactions, and collaborate.

In many organizations, the lines between intranet, Internet and extranet portals are becoming increasingly blurred, with each individual portal displaying a subset of common content and services shared across multiple Web properties. For example, key corporate information such as annual reports could be published once and shared across both internal and external sites. And employee collaboration portals could extend over the firewall as partners or vendors join a project.

Thus, portals play an increasingly important role in organizations looking to improve the effectiveness of how employees, partners, and customers interact with the breadth of information and services vital to that organization. As the importance, capabilities, and scope of portals grow, and as the lines between individual portals become increasingly blurred, organizations are moving toward an integrated approach to portals.

Multiple Portals, Multiplying Complexities

The integrated approach to portals is essential when an organization is managing multiple portals. Frequently, different divisions within a company will all have their own portals, all based on different portal architectures. Sometimes these portals even offer overlapping capabilities - a large company may have several intranet portals, for instance. Sometimes there are several unconnected portals, all serving different purposes - employee intranets and customer Internet sites, for instance.

This "island" approach to portals tends to result in increased maintenance costs and risk. The organization's ability to modify those portals, or to create new ones, to meet evolving business needs is significantly reduced because of the complexity and variance in the technology used. For example, developers may be skilled in one portal technology, but not another. Integration code and approaches already in place may be applicable to only one environment, and not transferable to another. Different authentication schemes, different databases, disconnected collaboration, content management and Web page rendering technologies - all these can drive costs up, reliability down, and reduce the return on investment considerably.

This is not meant to suggest that an organization must build its entire IT operation on a single architecture to realize the potential of portals. Indeed, the reality of any growing organization is that heterogeneous IT environments are the norm. However, there is significant benefit - in lower costs, faster time to market and greatly increased agility - in rationalizing the portal architectures used to provide “views” and access into that heterogeneous environment.

Portal Capabilities

When reviewing portal frameworks, it is essential to understand the breadth of capabilities required to meet all potential portal requirements. This helps define what your technical needs are today, what they may be in the future, and can reveal where your greatest challenges may lie.

A review of key portal scenarios shows that the most commonly required capabilities fall into the following broad categories:

- User Authentication
- Personalization
- Application Integration and Aggregation
- Search
- Collaboration
- Web Content Management
- Workflow
- Analytics

These capabilities and their technical implications are discussed below. Note that any one portal may not require all the capabilities listed above, but will exist within a portal environment where all capabilities are likely to be required, in various combinations, to meet evolving business needs.

User Authentication

By definition, portals imply content and functionality tailored to individual users. The first step is to identify the users accessing the portal. For some portal applications, such as Web storefronts, this may be accomplished through weak user identification - cookies, for example. However, for other portals, especially intranet portals, user authentication has to be stronger, requiring secure user IDs and passwords.

Authentication can cause problems, however, if the different systems brought together on the portal each requires its own user ID and password. The key to keeping a portal usable is for the users to authenticate themselves once - when signing on to the portal or system - and then have access to all the content and functionality that the portal offers. This is known as single sign-on (SSO), and requires that the various components aggregated on the portal utilize or integrate with the same network authentication scheme.

Personalization

Personalization is a blanket term used to describe the process where different content can be presented to a user based on who they are, where they are located on the portal, or even how they have interacted with the portal in the past.

There are two basic ways a portal can be personalized:

- *The presentation of information*. Users can customize specific parts of the user interface, such as which pieces of content appear where, picking different display styles, selecting services and back-end systems to be displayed, etc.
- *Content and functionality*. Which content a user sees is often a blend of user preferences and choices made automatically by the underlying application. These system choices are based on business logic - for instance, based on the user profile (employee vs. partner), or past purchasing or browsing behavior.

These two modes of personalization generally require two different approaches. The former type of personalization (commonly referred to as “interface personalization”) requires a database of user profiles and a Web page rendering engine directed by business logic processing. The latter (termed “content targeting”) requires deeper analysis, often referred to as analytics, where data mining, user profiling based on click streams, and user segmentation are used to inform the complex business logic that determines what is rendered.

Application Integration

Application integration is the connection of separate systems through data sharing and automated transactions. Enterprise application integration (EAI) can connect the HR system, for instance, with the payroll and accounting applications. Though these applications may not need to integrate directly with each other in a portal implementation, they will likely need to communicate (expose data and functionality) to the portal itself, as it provides a single interface to multiple applications and content sources.

Data-driven integration aims to move data between different non-production-oriented systems or from production systems into non-production data warehouses for analysis. Transaction-based integration aims to move production data between different production systems, for example between a procurement system and a billing system. This type of transaction stresses the importance of data transformation, data integrity, and distributed transactions.

Again, a common framework helps simplify the problem. For instance, single sign-on technologies can ease setting access to different data sources and applications. If a user’s profile does not allow access to particular data, then the portal should not offer access to that user.

Content Aggregation

Content aggregation expands on the key notion of creating content once and reusing it in multiple locations. Content aggregation involves gathering content from disparate sources, and then displaying that content within a single interface (the portal). Using content aggregation capabilities, a portal can present a unified view of content that may have different owners, hail form different production locations, or reside in different systems. For example, a technology firm’s external portal may provide information on each of the company’s partners, with that content aggregated directly from each partner’s external portal. When the partner changes the information, that change is then automatically reflected on the technology firm’s portal. Other typical examples include news feeds, stock tickers and catalogs.

Content aggregation can be accomplished using content management technologies. Because portals themselves require significant content management functionality (see below), there are benefits to centralizing on a single content management system, even if your content is dispersed across a number of different databases and servers.

Search

Search is an essential element of all portals (particularly content-driven portals) since search is what enables users to find exactly what they are looking for, regardless of whether the resource they need to access is intuitively categorized within the portal's navigational structure or taxonomy.

The simplest search implementation allows free-text searches of a set of documents, Web pages, or other content. Usually search tools will also include the ability to conduct parameterized searches against any metadata that has been captured with, or is implicit to, documents on the portal. For example, you may wish to search for all documents authored by a certain individual, or for all documents categorized with a specific keyword. More complex implementations enable searches of assets in content management systems, as well as searches through the actual content of a wide variety of file types (PDFs, database records, for example).

At the same time, search functionality must also work with user profiles and security settings, so that users conducting searches only see results for assets to which they have access. Searches may also make use of rich information in a user profile to further refine and personalize search criteria.

Again, tight integration between capabilities helps reduce cost, time and risk. Content management and personalization applications must work together to provide effective search capability.

Collaboration

Collaboration is another broad capability associated with portals. Collaboration features such as meeting spaces, project sites, workflow, document posting and versioning, check in/check out, discussion groups, real-time communication (chat), polls, subscriptions and customizable alerts, enable knowledge workers to effectively combine their efforts. Collaboration capabilities enable people to work together both synchronously and asynchronously.

Again, tight integration with other capabilities helps lower cost and risk. For example, collaboration tools integrated with productivity applications and search tools enable knowledge workers to not only find the information they need to make decisions, but also record those decisions in documents, and then share and collaborate on those documents with co-workers – all within a single, seamless portal environment, requiring minimal IT intervention to create, maintain and modify.

Web Content Management

Content management refers to the capacity to store, manage, and cross-reference documents of all kinds. As such, content management is an essential aspect of data-centric portals. Web content management (WCM) focuses on the capability of authoring, storing, managing, and publishing content to the Web. Web-based content may include HTML pages, ASP pages, images, sound clips, XML files, plain text, and rich media, and may also include other ancillary content such as style sheets and metadata.

Despite the traditional aggregation role of portals, the ability to create and manage unique, Web-based content on the portal is increasingly seen as an essential capability. For example, a corporate intranet site may primarily provide access to line of business systems, but could also use web content management capabilities to enable publishing of internal "breaking news" stories from the firm's HR group. Furthermore, the WCM system could also be used to aggregate press releases posted on the firm's external site into a comprehensive "internal news" section of the intranet portal.

One of the key services WCM provides is empowering business users to take control over their own content. A sophisticated content management system can excuse Web administrators from the day-to-day publishing of content to the portal. Instead, business users

are able to work within the WCM system to handle content creation, approval and publishing tasks on their own.

Therefore, a solid WCM system, closely integrated with other parts of the portal, such as user authentication, personalization, and search, can add significant value to a portal deployment.

Workflow

In the context of portals, workflow is primarily the process that controls how content is approved and published. Workflow is what enables business users to control their own content, because it limits approval and publishing rights based on criteria preset by the IT department. Sophisticated workflow includes alert functions to notify the next approver that content is ready for them to review, customizable approval paths to enable parallel processing, and variable review levels for different categories of content. Workflow can also form an essential part of a collaboration portal, where, for example, multiple parties have to sign off on group work before it is submitted as final.

Other workflow requirements are more transaction oriented. For example, using business rules to define how an order is handled once a consumer inputs it into a commerce portal.

Regardless of the context, workflow must be both easy to access for business users (preferably integrating status reporting and notifications within the tools they already use to do work), and easy to customize and extend for technical workers designing solutions that span multiple systems and scenarios.

Analytics and Reporting

On-line business analytics is about providing an organization with the information to optimize its online effectiveness. Web sites can generate gigabytes of data about user profiles, click-through streams, user browsing or buying behaviors, and site performance. This immense wealth of data can be easily transformed into insightful browsing trends, valuable user segmentation, and ultimately an intelligent feedback loop that enables organizations to optimize their portal investments. Many organizations let this intelligence go to waste because they do not have the analytics and reporting tools to aggregate and make sense of the data. OLAP techniques, Data Warehousing, and predictive capabilities provide powerful means to analyze large amounts of data rapidly. The multi-dimensional aspects of OLAP provide business managers reporting flexibility to view data from any perspective enabling them to easily slice data into the views that are meaningful. Analytics and reporting helps businesses make intelligent investment decisions about portal content, features, cross-selling capabilities, and online marketing campaigns.

Architecture

In addition to these basic capabilities, an integrated approach to portals requires some common architectural elements.

Rendering Framework

The rendering framework is the server technology that is responsible for assembling and rendering a Web page. Modern application-server architectures mean that in most cases developers are able to work with abstracted notions of Web pages, and are shielded from writing HTML.

Portals tend to be made up of a number of different pieces brought together. Therefore, a good rendering framework will have ready-made elements that can radically reduce development time. And because the rendering framework must interoperate with all the other parts of the portal system – the web content management system, the personalization system, the collaboration system – there is significant benefit to having them access a common web rendering technology.

Common Development Environment

Creating and deploying portals can be as simple as enabling a “team site” service on a file server. More typically, portals are complex development projects requiring integration of several technologies, and then development of custom functionality on top of those integrations. This complexity is especially evident as the lines between internal and external portals blur, and the business demands for ever more sophisticated functionality increase.

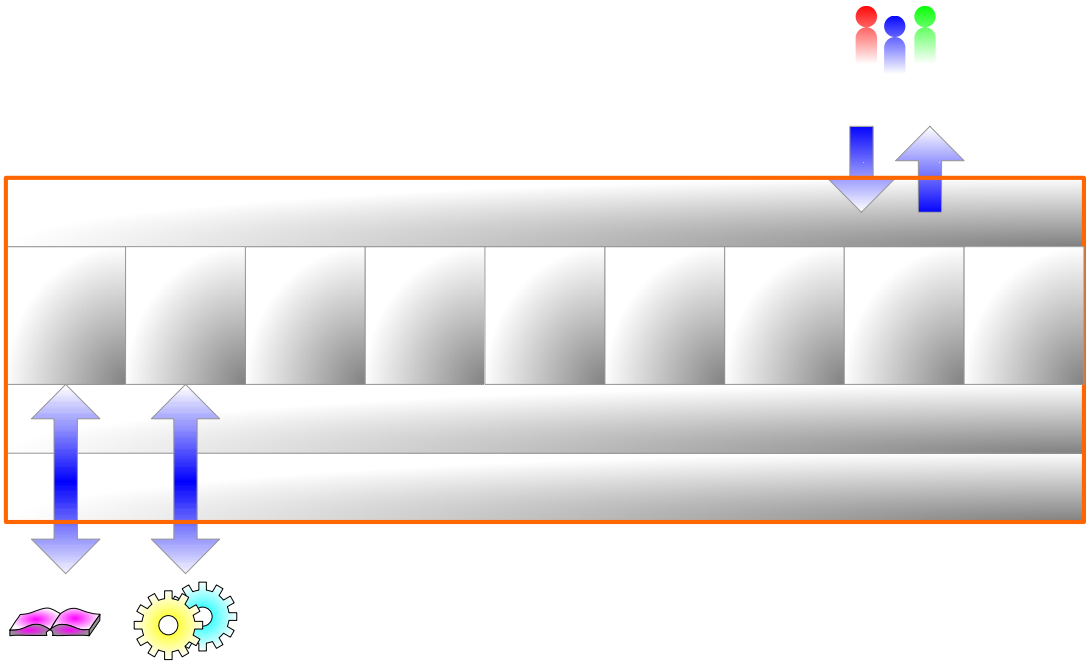
Given these conditions, there is significant benefit in working not only with an integrated stack of portal technologies, but also with a single development environment compatible across that entire stack of technology. If that development environment is also easy to use, has direct integration with the portal technologies, and leverages common skill sets, your portal development process has the potential to be much faster and less expensive.

Part 2: Microsoft Integrated Portal Technologies

Microsoft provides a range of platforms and products that together deliver all of the core portal capabilities. These platforms and products are collectively known as Microsoft® Integrated Portal Technologies (MIPT):

- Microsoft Platforms, such as Windows® Server™ 2000 or 2003, and the .NET Framework
- Products, such Microsoft SharePoint™ Portal Server (SPS), Content Management Server (MCMS), Commerce Server (MCS) and BizTalk® Server (BTS)
- Technologies, such as Windows® SharePoint Services (WSS) and XML Web Services
- Solutions and prescriptive guidance, such as Microsoft Solution for Internet Business and Content Integration Pack 3.0 (MCMS-SPS integration)

The following diagram loosely illustrates how key Microsoft products and platforms combine to address portal requirements.



The base layer of Microsoft Integrated Portal Technologies is services such as operating systems, databases, security, and user account management. These capabilities are common to all enterprise applications.

The next layer contains the Web application platform, developer tools, a rendering framework, and some platform capability for Enterprise Application Integration. These pieces, combined with the lower layer provide a platform on which any Web-based application can be built.

The key portal capabilities are layered on top of the Web application platform, along with client tools for content creation and consumption, as well as for interacting with services.

Integrated Portal Technologies

The following table illustrates how the various products contribute to the portal framework. Areas of overlapping technology indicate coverage of the respective capability across multiple technical and business scenarios.

Portal Capabilities of Core Products ↓	CS 2002	MCMS 2002	WSS	SPS	BTS	ASP.NET & .NET framework
Content Aggregation		✓		✓	✓	✓
Business Service Aggregation				✓	✓	✓
Search				✓		
Collaboration				✓		
Single Sign-On (SSO)					✓	
Workflow		✓			✓	
Web Content Management		✓	✓	✓		
Personalization	✓	✓		✓		✓
Analytics	✓					
Product and Commerce Management	✓				✓	

Key Server Products Defined

- **Microsoft SharePoint Portal Server 2003** is the scalable portal server that connects people, teams and knowledge across business processes. SPS 2003 integrates information from various systems into one solution through single sign-on and enterprise application integration capabilities. It provides flexible deployment and management tools, and facilitates end-to-end collaboration through data aggregation, organization, and searching. SharePoint Portal Server 2003 also enables users to quickly find relevant information through customization and personalization of portal content and layout, as well as through audience targeting. Audience targeting aims information and updates to individuals based on their organizational role, team membership, interest, security group, or any other membership criteria that can be defined using notifications or Web Parts.

  Integrated with: MCMS for Web content management, content creation, and content publishing to SPS portal; BTS for application integration; and WSS for management and aggregation of team portals.

- **Microsoft Content Management Server 2002** dramatically reduces the time required to build and deploy content-driven Web sites that deliver high scalability, reliability, and performance. Content Management Server empowers content providers to manage their own content and provides site users with a targeted and personalized experience tailored to their profile and browsing device.

  Integrated with: SPS for search, content development, exposure of MCMS workflow and status; BTS for content aggregation; and MCS for personalization and analytics.

- **Microsoft Commerce Server 2002** offers users a less complicated and less time consuming way to build tailored, effective e-commerce solutions. By providing the application framework, together with sophisticated feedback mechanisms and analytical capabilities, you can quickly develop sites that optimize the customer experience, encouraging repeat business and forging tighter partner relationships.

  Integrated with: MCMS for Web content management and content creation; and BTS for enterprise integration.

- **Microsoft BizTalk Server** enables you to rapidly build and deploy integrated business processes within your organization and with partners. BizTalk Server offers a suite of tools and services that make building business processes and integrating applications faster. Safe, reliable trading partner relationships can be quickly implemented independent of operating systems, programming models, or programming languages.

  Integrated with: MCMS for Web content management and content creation; and MCS for end-to-end transaction processing.

- **SQL Server™ 2000** is a complete, Web-enabled database and data analysis package that opens the door to the rapid development of a new generation of enterprise-class business applications that can give your company a critical competitive advantage. SQL Server provides core support for XML and the ability to query across the Internet and beyond the firewall. Visual Studio® .NET is a complete set of tools for developing portal solutions.

  Integrated with: all Microsoft Integrated Portal Technologies as back-end storage.

- **Windows Server 2003** is the most productive infrastructure platform for powering connected applications, networks, and Web Services from the workgroup to the data center. Easy to deploy, manage, and use, Windows Server 2003 helps you build a more secure IT infrastructure that provides a powerful application platform for quickly building connected solutions and an information worker infrastructure for enhanced communication and collaboration anytime and anywhere.

  - A key piece of the information worker infrastructure delivered in Microsoft Windows Server 2003, **Windows SharePoint Services** is the engine that allows you to create Web sites for information sharing and document collaboration. Windows SharePoint Services provides additional functionality to the Microsoft Office system and other desktop applications, as well as serving as a platform for application development. SharePoint sites provide communities for team collaboration, enabling users to work together on documents, tasks and projects. The environment is designed for easy and flexible deployment, administration, and application development.

Part 3: Portal Solution Scenarios

Whether you're looking to deliver project status to key customers, or to provide specific consumer segments with tailored product catalogs and purchase options, Microsoft Integrated Portal Technologies can deliver the capabilities you require.

The following portal solution scenarios provide a sampling of typical portal implementations. Each scenario provides an overview of the capabilities necessary to fulfill the portal requirements, and discusses how various components of the Integrated Portal Technologies combine to deliver the intended solution.

This section examines five portal scenarios:

Team/Project Collaboration portal – Connects project team members through a Web workspace where they can communicate, collaborate, and manage project information and key documents. Such a portal is typically implemented internally - behind a company's firewall, though it also serves well in a partner extranet scenario.

Corporate Communication portal – Delivers important organizational information to employees. The communication portal is most frequently deployed as an intranet site.

Business Process portal - Offers an organization's employees centralized access to CRM systems, ERP systems, and other Line of Business Applications. In some cases, the portal itself is a business application that automates an otherwise manual process, such as an internal procurement site. A Business Process portal is rarely directly exposed to customers.

Partner Relationship and Trading portal – Provides trading partners with business-critical information and access to key transaction processes.

Customer Relationship/Commerce portal – Provides full information, publishing, and/or e-commerce services to customers. The portal offers robust search mechanisms and transaction processes to find and procure information, products, services, etc. Customer-focused portals may sometimes require integrations into line of business applications, to deliver pertinent information to customers, such as purchase history and account status. Other possible integrations include content publishing links to internal collaboration sites, where critical external-facing content is created, versioned and then published to the external customer site.

Team/Project Collaboration Portals

Successful projects require cooperation among team members and continual communication. The Team/Project Collaboration portal scenario addresses the critical need for project team members to share important information and ideas, and collaborate on project documents.

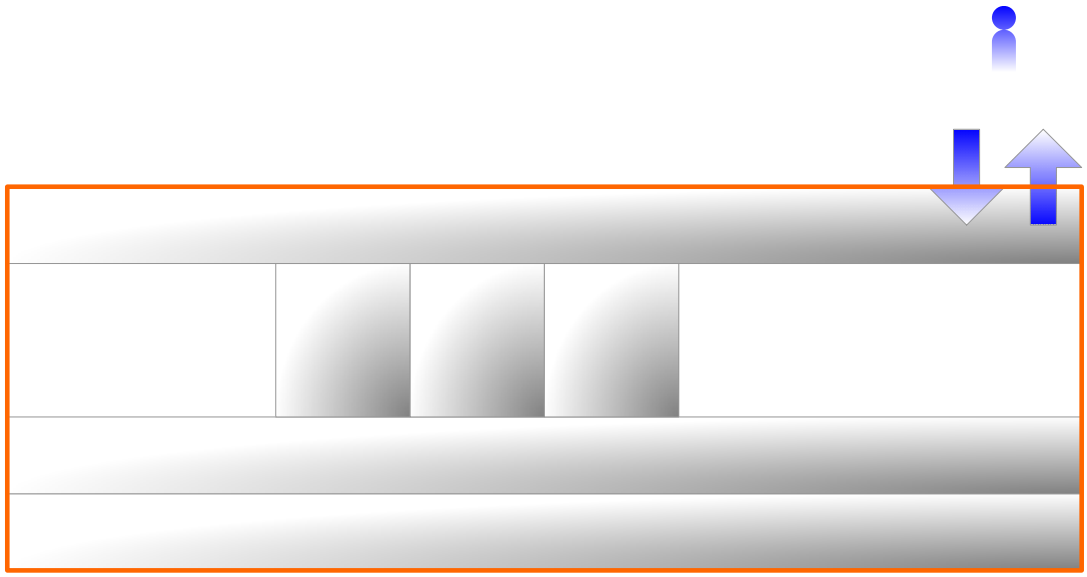
Capabilities

Implementing a Team/Project Collaboration portal requires the following Microsoft Integrated Portal Technology capabilities:

- Search
  - Ability to search for documents.
- Collaboration
  - Ability to store current and archived documents in a common place.
  - Ability to check documents in and out.
  - Ability to categorize documents and attach metadata.

- Ability to interact with other knowledge workers through chat, email, etc.
- Ability to take polls and host public discussions.

- Workflow
  - Ability to route and approve documents.



Once implemented, the portal essentially replaces the combination of systems that project teams would typically use to communicate and share pertinent project information. Instead of working through multiple systems, team members can access functionality such as collaboration, storage, public folders, and spreadsheet-based lists, on the team's Web workspace.

Solution

The Team/Project Collaboration portal is generally used in a decentralized manner by small teams of knowledge workers. The effectiveness of knowledge workers is tied to their ability to efficiently create, store, find, and revise content among their team. Documents are usually at the heart of the Team/Project Collaboration portal. A typical business document will have a lifecycle that involves conception, creation, distribution, discussion, revision, repurposing, and finally obsolescence. The nature of the document will dictate how much or how little it participates in each of those processes, but all documents will participate in these steps to some degree.

By using Microsoft Integrated Portal Technologies, you can integrate document collaboration features directly into Microsoft Office. The integrated features enable team members to see who has contributed to a document, initiate real-time communications with other team members, and check required documents in and out of the repository – all without leaving the familiar Office environment.

Microsoft Integrated Portal Technologies also enable you to extend the benefits of team collaboration to a larger organization or division by aggregating multiple team collaboration areas into a higher-level portal. As part of this aggregation, MIPT provides further search

functionality to aid knowledge workers in finding relevant documents on larger aggregated sites.

Implementation

The Team/Project Collaboration portal uses Windows SharePoint Services for team workspaces and SharePoint Portal Server to aggregate those team portals together into larger views.

Windows SharePoint Services is a natural starting point for small teams of employees to collaborate on documents. For more centralized deployments that need to aggregate content from multiple WSS sites or want more robust search features, SharePoint Portal Server is a better fit.

Integration Points

All of the integration points in this scenario are contained within SharePoint Portal Server which can aggregate multiple WSS sites without needing to build special integrations. These SPS sites can in turn be aggregated into even higher-level sites. Often, as these aggregated portals broaden, they begin to evolve into Corporate Communication portals.

Corporate Communication Portals

A Corporation Communication portal, often referred to as an intranet site, provides an organization's employees with access to corporate information and applications. The goal of a Corporate Communication portal is to increase employee productivity and reduce operational costs by providing access to resources that can help an employee perform their work functions.

Capabilities

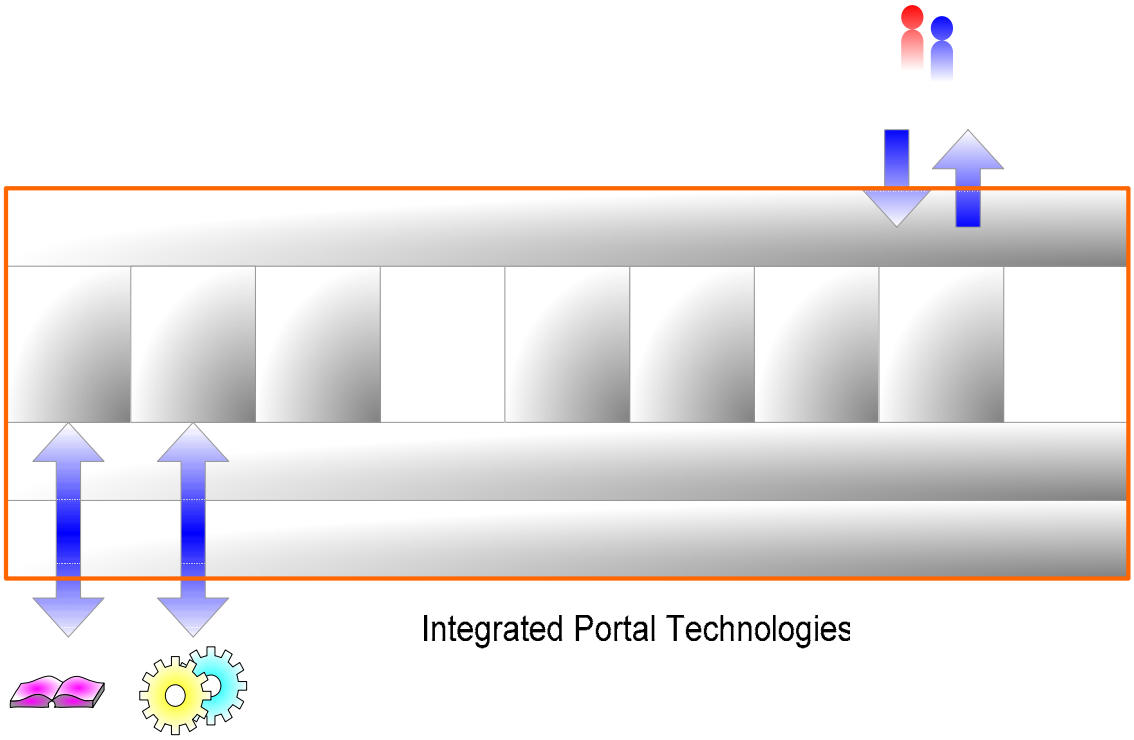
Implementing a Corporate Communications portal typically requires the following capabilities:

- Search
  - Global taxonomy
  - Ability to search for documents
  - Ability for employees to search locally-created and aggregated content
  - Ability for employees to categorize locally-created and aggregated content
- Content Aggregation
  - Ability to aggregate or syndicate content from multiple heterogeneous sources inside and outside of the enterprise into a single consistent format
  - Ability to cache aggregated content in a local content repository
- Workflow
  - Ability to route and approve documents
  - Ability to approve locally-created and aggregated content
- Web Content Management (self-service publication of content by employees)
  - Ability for a select group of employees to author html-based content in any language
  - Ability for Web designers and IT staff to create templates to enforce consistent branding and presentation
- Analytics
  - Ability to perform Web traffic analysis
- Business Service Aggregation
  - Pre-built integration components
  - Ability to write new integrations
- Personalization
  - Ability for authors to personalize content for specific employees
- Single Sign-on

Main Benefits

- Eliminate duplication of efforts
- Simplify information retrieval
- Reduce operational costs

- Increase employee productivity
  - Automate processes



Solution

The Corporate Communication portal focuses on delivering relevant information and applications to employees. Most typically, content is published by a small number of authors, and consumed by a large audience. Such a structured publisher and employee role will likely necessitate an authorization workflow to approve content before posting. Of course not all content will be developed exclusively for the portal. Some content may be syndicated or aggregated from other sources, such as team or departmental portals.

Since Corporate Communication portals typically contain large amounts of content, personalization can improve communication by enabling users to organize their interface to highlight content most relevant to them. Personalization tools allow them to define view preferences and locate pertinent information quickly and easily.

Implementation

This scenario uses SharePoint Portal Server and/or ASP.NET platform. If you plan to use pre-built integration Web Parts, you will want to use SharePoint to host the site. If not, you have the option of using SharePoint and developing new Web Parts, or else using ASP.NET and building the integration components directly in ASP.NET. If you decide to develop new Web Parts, you may choose to use Content Management Server to help structure your site and host any supporting content. Whether or not you use MCMS will also depend on the size and complexity of the site that you are trying to build.

For SharePoint-based solutions, most of the integration will be accomplished using Web Parts. For ASP.NET-based solutions, you should focus on creating or reusing custom Web controls (either compiled server controls, or code-front and code-behind user controls) that connect to back-end applications.

Microsoft Integrated Portal Technologies provide a library of pre-built Web Part integrations with a variety of back-end systems including Microsoft Business Solutions, SAP, Siebel, and others. Microsoft also provides templates that allow for the creation of custom Web Parts to connect to other line of business systems. All of these integrations can take advantage of credential mapping to provide single sign-on. In addition, Microsoft Integrated Portal Technologies provide the ability to leverage Web Services and powerful message broker and process orchestration to accomplish deeper EAI integrations.

Web Parts

http://www.microsoft.com/sharepoint/downloads/components/default.asp

Templates

http://msdn.microsoft.com/library/default.asp?url=/library/enus/dnspts/html/SharePoint_webparttemplates.asp .

By leveraging Content Integration Pack version 3.0, an integration pack between Content Management Server and SharePoint Portal Server, you can enable employees to author MCMS content directly in SharePoint Portal Server – which will then be rendered as MCMS content Web Parts. Also, if you enable Windows integrated authentication in both SPS and MCMS and create active directory groups, you can provide single sign-on to users who need to author content as well as view permission-based content pages.

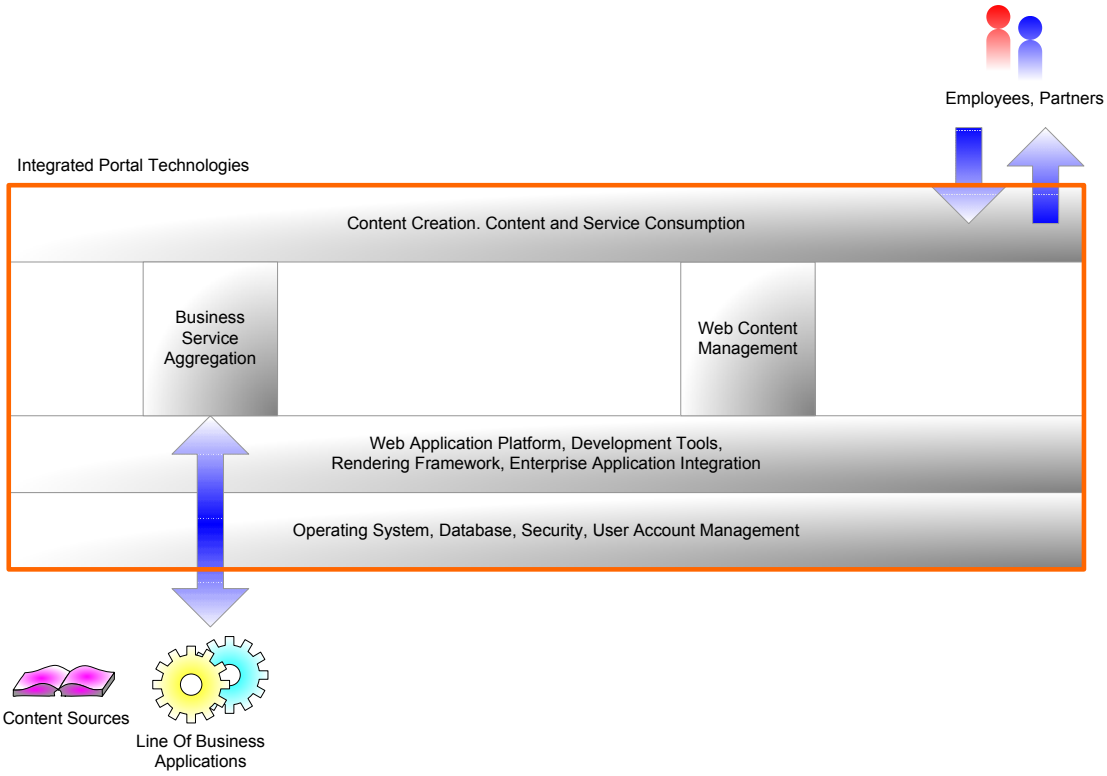
Business Process Portals

A Business Process portal provides a unified Web-based user interface for any number of business-critical back-end applications – most typically, enterprise solutions such as ERP and CRM systems. Unifying the user interfaces of these applications provides enormous improvement in productivity for employees required to interact with multiple pieces of enterprise software.

Capabilities

Implementing a Business Process portal requires the following capabilities:

- Business Service Aggregation
  - Pre-built integration components
  - Ability to write new integrations
- Web Content Management
  - Ability to structure the site and provide contextual content to help users use the portal more effectively.



- Single-sign-on

Implementation

Depending on the specific requirements, the solution should be built using SharePoint Portal Server and/or ASP.NET platform. If you plan to use pre-built integration Web Parts, you will want to use SPS to host the site. If not, you have the option of using SPS and developing new Web Parts, or else using regular ASP.NET and building the integration components directly in ASP.NET. Microsoft Partners have also developed integration packs that you can use to

integrate SPS with systems such as Peoplesoft, SAP, and Siebel. Tight integration with Microsoft BizTalk Server also enables enterprise application integration (for example, with SAP, Siebel, and PeopleSoft).

For SharePoint-based solutions, most of the integration will be accomplished by using Web Parts. For ASP.NET-based solutions, you should focus on creating or reusing custom Web controls (either compiled server controls, or code-front and code-behind user controls) that connect to back-end applications. You may choose to use Content Management Server to help structure your site, and host any supporting content. Whether or not you use MCMS will also depend on the size and complexity of the site that you are trying to build. To integrate an ASP.NET solution with SAP you can leverage the SAP .NET Connector, a programming environment that enables communication between the Microsoft .NET platform and SAP systems.

Microsoft Integrated Portal Technologies provide a library of pre-built Web Part integrations with a variety of back-end systems including Microsoft Business Solutions, SAP, and Siebel. Microsoft also provides templates that allow for the creation of custom Web Parts to connect to other LINE OF BUSINESS systems. All of these integrations can take advantage of credential mapping to provide single sign-on. In addition, Microsoft Integrated Portal Technologies provide the ability to leverage Web Services and powerful message broker and process orchestration to accomplish deeper EAI integrations.

Web Parts

http://www.microsoft.com/sharepoint/downloads/components/default.asp

Templates

http://msdn.microsoft.com/library/default.asp?url=/library/enus/dnspts/html/SharePoint_webparttemplates.asp.

Partner Relationship and Trading Portals

A Partner Relationship and Trading portal provides trading partners with crucial relationship information and access to key transaction processes such as procurement of equipment, parts, supplies, etc. The portal typically aggregates content, such as vendor product catalogs into a single site accessible to all partners. Portals typically do not offer products manufactured by the hosting company, but rather offer goods and services they and their business partners need to operate. Such products may include office supplies, books, software, furniture, delivery services, etc.

Organizations provide these procurement services in a number of ways:

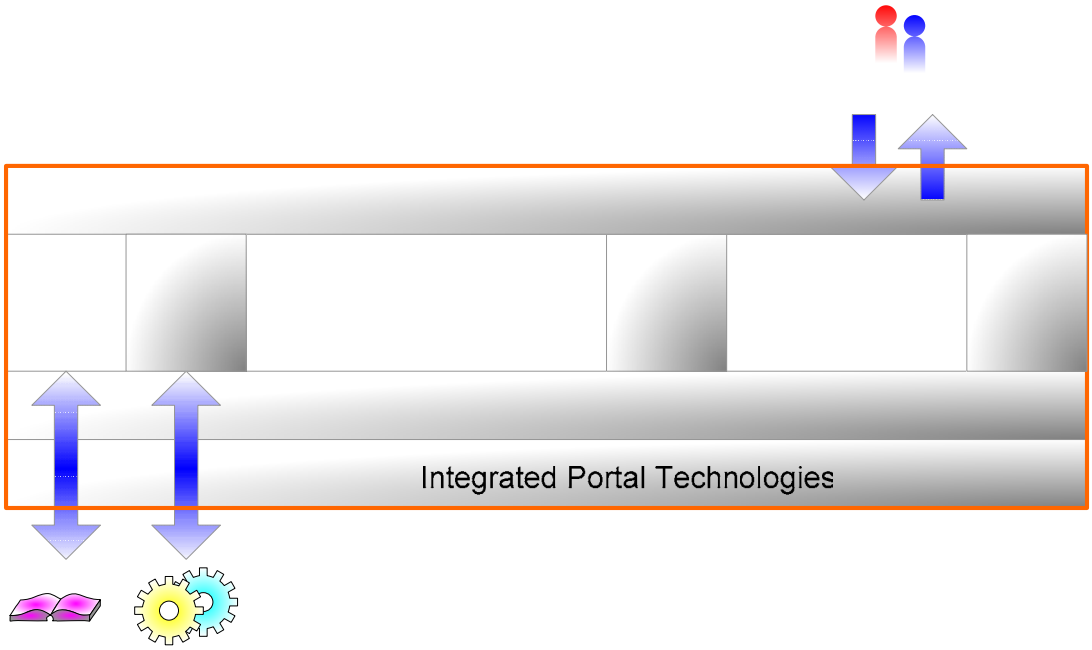
- Use the portal as a central jumping-off point for employees to visit other vendors' public Internet sites
- Use the portal as a jumping-off point to a customized external site which then returns the user to the portal for order processing
- Use the portal to sell vendor merchandise directly by importing the vendor catalogs and implementing custom pricing rules

In almost all of these cases, payment will be made through a PO, rather than a credit card.

Capabilities

Implementing a Partner Relationship and Trading portal requires the following capabilities:

- Product Management
  - Ability to support multiple catalogs from different vendors with different product formats and properties
  - Ability to support a variety of payment methods
  - Ability to implement custom pricing and discounting rules
- Business Service Aggregation
  - In the case of employee portals, the ability to orchestrate manager and/or finance approval, and vendor payment
  - In the case of partner transactional portals, the ability to orchestrate payment (in the case of suppliers), or fulfillment (in the case of channel partners)
  - Ability to place vendor orders as distributed transaction
- Web Content Management
  - Ability to provide a structured site and supporting content (e.g., procurement policies)



Solution

Typically, Partner portals target either channel partners who resell a company's goods or services, or suppliers, who sell operational-level services and products to the hosting organization. Microsoft Integrated Portal Technologies facilitate these trading relationships by providing robust catalog management features, particularly the ability to manage multiple virtual catalogs, and to implement special pricing rules typically found in procurement or trading-partner relationships.

These catalogs can be imported or exported in a common XML format and the product property schemas can vary from catalog to catalog (or even from product to product within a single catalog). Of course, the catalog management system is supported by purchasing tools such as credit card processing integrations, and the ability to integrate transparent payment processing typically required by employee-focused procurement systems. In addition, Microsoft Integrated Portal Technologies contain tools to integrate a number of different back-end systems that participate in the approval, payment, order processing, and fulfillment processes.

Implementation

Commerce Server provides some of the core pieces of functionality required to implement this solution, including product catalog management, basket capability, and payment processing. BizTalk Server also plays an important role for orchestrating processes such as payment processing and fulfillment. Depending on the size and complexity, Content Management Server might also be used to provide supporting content and overall site structure.

Content Sources

Line Of Business
Applications

Customer Relationship and Commerce Portals

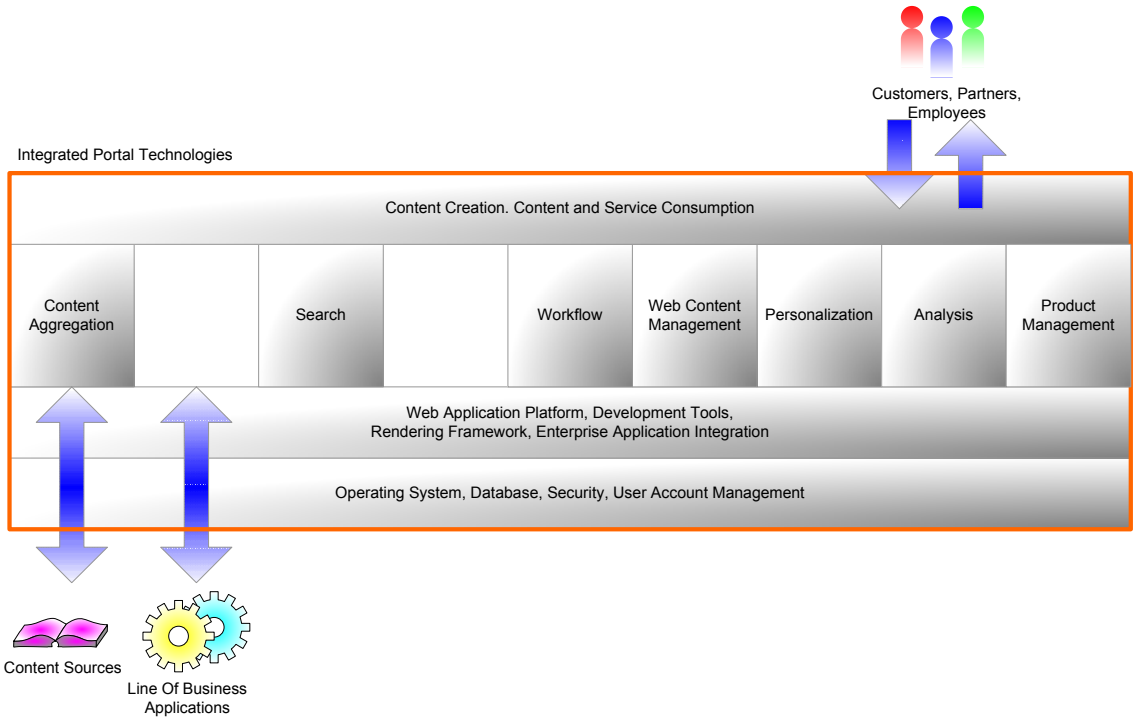
The Customer Relationship and Commerce portal offers customers both product and service information, and product procurement services. Aimed at a particular group of consumers the site may represent a single information silo and deliver only content produced exclusively for that site, or it may serve as an organizational structure that pulls content from other locations.

Note that if you wish to aggregate interactive services from other applications, you may want to refer to the Business Process portal scenario.

Capabilities

Implementing a Customer Relationship and Commerce portal requires the following capabilities:

- Web Content Management
  - Ability for a select group of content contributors to author html-based content
  - Ability for Web designers and IT staff to create templates to enforce consistent branding and presentation
- Product Management
  - Ability to support multiple catalogs from different vendors with different product formats and properties
  - Ability to support a variety of payment methods
  - Ability to implement custom pricing and discounting rules
- Business Service Aggregation
  - Pre-built integration components
  - Ability to write new integrations
- Content Aggregation
  - Ability to aggregate or syndicate content from multiple heterogeneous sources inside and outside of the enterprise into a single consistent format
  - Ability to cache aggregated content in a local content repository
- Search
  - Ability to search locally-created and aggregated content
  - Ability to categorize locally-created and aggregated content
- Workflow
  - Ability to approve locally-created and aggregated content
- Personalization
  - Ability for content consumers to build profiles to allow content targeting
- Analysis
  - Ability to perform Web traffic analysis



Solution

Customer Relationship and Commerce portals focus on publishing relevant content to a group of content consumers and/or allowing customers to buy products – either those produced by the hosting company, or products offered by other vendors.

Typically content will be published by a small number of authors, and consumed by a large audience of content consumers. Because of this structured publisher and consumer role (rather than the collaborative model of the Collaboration portal), content will likely need to pass through an approval workflow before being posted. Such a structured publisher and employee role will likely necessitate an authorization workflow to approve content before posting. In addition to the ability to publish exclusive content, some content may be syndicated or aggregated from other sources. This aggregated content may come from other customer portals, partner sites, or news services.

Consumer portals invariably contain huge amounts of content. Supporting personalization will help build customer relationships by tailoring each customer's experience according to their viewing habits and personal preferences.

Microsoft Integrated Portal Technologies provide the following:

- Provides a rich Web content publishing and management system that allows users to contribute content either via a Web-based authoring interface, or through the MS Office applications with which they are already familiar.
- Includes a workflow system, accessible through a Web-based interface, that governs the content publication. Approved content can then be targeted at consumers using the integrated profiling and targeting system.
- Provides content aggregation capabilities, and the ability to analyze web traffic, in addition to housing locally created content.
- Includes robust catalog management features, including the ability to manage multiple catalogs, and to implement special pricing rules typically found in procurement or trading-

partner relationships. These catalogs can be imported or exported in a common XML format and the product property schemas can vary from catalog to catalog (or from product to product within a single catalog). Of course the catalog management system is supported by purchasing tools such as credit card processing integrations, and the ability to integrate transparent payment processing typically required by employee-focused procurement systems.

- Contains tools to integrate a number of back-end systems that participate in approval, payment, order processing, and fulfillment.

Implementation

A Customer Relationship and Commerce portal requires the integration of Content Management Server, Commerce Server and BizTalk Server. Content Management Server delivers Web content management and basic workflow capabilities. Commerce Server provides product catalog management, basket capability, and payment processing features. BizTalk server typically orchestrates processes such as payment processing and fulfillment.

Content Management Server includes a template-based web content entry interface, simple approval workflow with assignable user rights, and a rich application construction environment through an integration with Visual Studio.NET. For content contribution, MCMS also supports MS Word as an authoring environment.

MCMS has an integrated two-step workflow that is useful for the most basic approval processes; however, if you need to extend this workflow to support longer serial approval chains, or to include things like parallel approvals or notifications, you will need to investigate one of the ISV solutions for MCMS workflow.

Content aggregation capabilities are provided by XML Web Services where MCMS is used as a local cache of aggregated content. Using MCMS as a cache provides the added benefit of being able to wrap the aggregated content with a presentation style consistent with the rest of the site.

Search capabilities are provided by SharePoint Portal Server. Though indexing of content is typically handled by the search system, MCMS can also be configured to capture basic metadata. Metadata captured by MCMS is then exposed to the search engine to allow parameterized searches of content.

Personalization is provided by Content Connector (part of the Microsoft Solution for Internet Business). This is a pre-built integration between Content Management Server and Commerce Server that allows Commerce Server's profiling and targeting systems to be used for profiling users and content, and then targeting content based on configurable business rules. This form of personalization works well for content-rich sites, as it helps users find the most relevant information on a site.

Analysis services are provided by Commerce Server, which provides business users with intelligence about user behaviors and patterns allows IT to determine how effective a site is at routing users to relevant content.

Conclusion

Portals are an increasingly important part of the IT architecture, primarily because of their ability to lower costs, increase employee productivity, and strengthen relationships with customers and partners. Portals accomplish this by pulling together data and functionality from disparate sources into an accessible package tailored to the needs of the individual user.

Initially, portals were viewed as discreet, stand-alone deployments, each with a single purpose. Today, the volume and complexity of portal deployments, as well the pervasive business need for increased agility, are compelling organizations to take a broader approach to addressing portal requirements. This “portals platform” approach implicitly recognizes the need to rationalize portal investments, while embracing the reality that overburdened IT departments will only be faced with more and more business-driven requests for portal functionality.

Microsoft Integrated Portal Technologies address this “platform” need by offering an integrated stack of technologies that satisfy all core portal capability requirements: user authentication, personalization, application integration and aggregation, search, collaboration, Web content management, workflow and analysis. Additionally, the Microsoft Integrated Portal Technologies are built around a common rendering framework, and leverage a common development environment, helping organizations to deploy more effective portal solutions in less time and at a lower cost.

Windows Server System is comprehensive, integrated, and interoperable server infrastructure that simplifies the development, deployment, and management of flexible business solutions.
www.microsoft.com/windowsserversystem